UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
BITAR, NANCY

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>16 July 2008</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-15</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>09 May 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>9/15/08,6/11/08,7/15/08</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Response to arguments

Applicant's arguments, in the amendment filed 7/16/2008 with respect to the rejections of claims 1-8 under

35 U.S.C.103 (a) have been fully considered but are moot in view of the new ground(s) of rejection

necessitated by the amendments. Therefore, the rejection has been withdrawn. However, upon further

consideration, a new ground(s) of rejection is made in view Sharma et al (US 20040128512) and Chen et al

(Symmetric phase-only matched filtering of Fourier mellin transforms for image registration and

recognition) and further in view Pareira et al (template based recovery of Fourier based watermarks using

log polar and log-log maps) .

Examiner Notes

1.   Examiner cites particular columns and line numbers in the references as applied to the claims below

for the convenience of the applicant. Although the specified citations are representative of the teachings in

the art and are applied to the specific limitations within the individual claim, other passages and figures may

apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the

references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the

passage as taught by the prior art or disclosed by the examiner

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections

set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented
> and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (

US20040128512), in view of Chen et al (Symmetric phase-only matched filtering of Fourier mellin

transforms for image registration and recognition) and further Pareira et al (template based recovery of

Fourier based watermarks using log polar and log-log maps) .

As to claim 1, Sharma et al teaches a method of extracting a fingerprint from a multimedia an audio

signal, the method comprising the steps of:

extracting a set of robust perceptual features from the audio signal (image data 400); subjecting the

extracted set of features to a Fourier-Mellin transform to compensate for speed changes in the audio signal

(transform image data, 402, figure 11, The detector segments the target image into blocks (e.g., 600, 602)

and then performs a 2 -dimensional Fast Fourier transform (2D FFT) on several blocks. This process yields

2D transforms of the magnitudes of the image contents of the blocks in the spatial frequency domain as

depicted in the plot 604 shown in FIG. 12, note that A Fourier Mellin transform is one of many remapping

transforms that can be used with the present invention, paragraph [0144]); and converting the transformed

set of features into a sequence constituting the fingerprint (multi -dimensional media signal, such as an

image, audio sequence or video sequence, paragraph [0013], note that the watermark embedded encodes a

watermark signal in a host signal to create a combined signal. The detector looks for the watermark signal in

a potentially corrupted version of the combined signal, and computes its orientation. Finally, a reader

extracts a message in the watermark signal from the combined signal using the orientation to approximate

the original state of the combined signal).Moreover, Sharma teaches the corresponding verification data is

preferably predetermined and stored for comparison. The user is prompted to provide the verification data

(e.g., to provide a PIN, yield to a fingerprint or retinal scan, etc.). (The user may be prompted to provide such verification data prior to, or after, presentment of the document). While Sharma meets a number of the limitations of the claimed invention, as pointed out more fully above, Sharma fails to specifically teach the feature sequence constitute the fingerprint. Specifically, Chen et al fingerprint recognition (section C, page 1165) where the FMI-SPOMF is used to recognize the fingerprint by matching fingerprint minutia with respect to the Fourier mellin transformation. It would have been obvious to one of ordinary skill in the art to transfer the sequence constituting the fingerprint in Sharma in order to have a high discriminating power and excellent robustness in the presence of noise. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Pareira et al. teaches a method as claimed in claim 1, wherein said converting step includes converting the magnitudes of the Fourier-Mellin transform (see section 4.4, magnitude of the FFT, pages 3-5). Because transferring the magnitude of the Fourier mellin transform renders the method robust against rotation scaling or aspect ratio changes. It would have been obvious to one of ordinary skill in the art to include the magnitude algorithm in Fourier transform of Sharma et al in order to overcome the sampling problem and maximizing the number of points matched between the known template and the image.

As to claim 3, Sharma et al teaches the method as claimed in claim 1, wherein said converting step includes converting a derivative of the phase of the Fourier-Mellin transform. (The detector process performs a log polar remapping of each transformed block. The detector may add some of the blocks together to increase the watermark signal to noise ratio. The type of remapping in this implementation is referred to as a Fourier Mellin transform. The Fourier Mellin transform is a geometric transform that warps the image data from a frequency domain to a log polar coordinate system. (A Fourier Mellin transform is one of many remapping transforms that can be used with the present invention.). As depicted in the plot 606

showed in FIG. 12, this transform sweeps through the transformed image data along a line at angle .theta.

mapping the data to a log polar coordinate system shown in the next plot 608. The log polar coordinate

system has a rotation axis, representing the angle .theta. and a scale axis. Inspecting the transformed data at

this stage, one can see the orientation pattern of the watermark begin to be distinguishable from the noise

component (i.e., the image signal, paragraph [0112-0114], see also Chen et al pages 1162-1167)

As to claim 4, Pareira et al. teaches a method as claimed in claim 1, wherein Fourier-Mellin

transform includes a one-dimensional log mapping process being applied to the set of perceptual features

(see section 2.1 and 4.4).

As to claim 5, Pereira et al. teaches method as claimed in claim 1, wherein the audio signal forms

part of an image or video signal and said Fourier-Mellin transform includes a two-dimensional log-polar

mapping process being applied to the set of perceptual features (see section 4.1, log-polar mapping , page

3).

As to claim 6, Pareira et al. teaches method as claimed in claim 1, wherein the audio signal forms

part of an image or video signal and said Fourier-Mellin transform includes a two-dimensional log-log

mapping process being applied to the set of perceptual features (section 4.2, log-log mapping, page 3, see

also section 4.4).

As to claim 7, Chen et al teaches the method as claimed in claim 1, wherein said extracting includes

normalization of the set of perceptual features (abstract, section B and C)

Claims 8- 15 differ from claims 1-7 only in that claims 1-7 are method claim whereas, claims 8-15

are an apparatus claim. Thus, claims 8-15 are analyzed as previously discussed with respect to claims 1-7

above.

Conclusion

3.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624

Nancy Bitar   10/22/2008